UC Davis Global Disease Biology Major/Minor
http://gdb.ucdavis.edu/

Core Competencies/Learning Outcomes for Global Disease Biology

Competency 1: Global Disease Issues in Animals, Humans, and Plants
Demonstrate an understanding of historical, cultural, and scientific antecedents to past, present, and emerging global health problems.

Competency specific skill set
Demonstrate the ability to:

1) Describe the biological principles, scope and complexity of disease in people, animals, and plants in a global health context;
2) Understand the effects of global change on health and how both local and global factors affect disease transmission within and between countries;
3) Identify and understand the origins and determinants of health (human, animal and plant) as related to disease;
4) Compare and contrast health and non-health consequences of diseases and exposures, including economic impacts and social pressures, across global regions;
5) Recognize major challenges and opportunities to improve global health.

Competency 2: Disease Knowledge
Demonstrate relevant, practical knowledge of established and evolving transdisciplinary, epidemiological, socio-behavioral, management, and economic sciences, as well as the application of this knowledge, to the improvement of global health.

Competency specific skill set
Demonstrate the ability to:

1) Characterize the etiology, evolution, and ecology of infectious disease agents of people, animals, and plants that are of global health importance;
2) Describe the main transmission routes for infectious diseases, including human-human, animal-human, plant-plant, human-plant, vector-borne, water-borne, and air-borne cycles;
3) Explain epidemiologic principles used to characterize problems that involve human, animal, plant, and environment components;
4) Use the principles that underlie biological complexity, genetic diversity, and interactions of systems from individuals to ecosystems to understand human, animal and plant health.
5) Understand common cultural and socio-economic determinants and impacts of illness, including poverty, residential geography, cultural practices, education, nutrition, and resource security;
6) Describe interventions used to prevent disease and improve human, animal and plant health at the individual, community, and population levels.

Competency 3: Scientific Research and Methods
Demonstrate the ability to understand and apply principles of research and evaluation methods.

Competency specific skill set
Demonstrate the ability to:

1) Describe the benefits and challenges of a multi-disciplinary, integrative approach when implementing a prospective investigation into health concerns at the human-animal-plant-environment interface;
2) Effectively communicate, both orally and in writing, scientific data and findings to the scientific community, public audiences, media, and policy makers.
3) Demonstrate scientific quantitative skills, such as the ability to evaluate experimental design, read graphs, and use information from scientific papers.
4) Demonstrate the ability to build a transdisciplinary team and apply principles of participatory research and ethical practice;
5) Develop a plan to translate research findings and new discoveries into global health policies, community programs, interventions and public education in a manner that is sustainable and culturally relevant.